State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

June 9, 2006

Board of Land and
Natural Resources
Honolulu, Hawaii

REQUEST FOR AUTHORIZATION/APPROVAL TO ISSUE ONE (1) NORTHWESTERN HAWAIIAN ISLANDS (NWHI) RESEARCH, MONITORING AND EDUCATION PERMIT TO DR. RUSSELL BRAINARD OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA), PACIFIC ISLAND FISHERY SCIENCE CENTER (PIFSC), CORAL REEF ECOSYSTEM DIVISION (CRED), FOR THE REMOVAL AND MITIGATION OF MARINE DEBRIS IN THE STATE WATERS OF THE NORTHWESTERN HAWAIIAN ISLANDS, VALID FROM JULY 17, 2006 TO SEPTEMBER 6, 2006

Submitted herewith for your authorization and approval is a request for issuance of a NWHI Access Permit to Dr. Russell Brainard of NOAA, PIFSC, Coral Reef Ecosystem Division. The Research, Monitoring and Education Permit, described below, will allow activity to occur in the NWHI State Marine Refuge (0-3 miles) waters surrounding French Frigate Shoals, Laysan Island, Lisianski Island, Neva Shoal, Pearl and Hermes Atoll, and Kure Atoll. The activities covered under this permit will occur from July 17, 2006 to September 6, 2006, from the support vessel Oscar Elton Sette.

NOAA Fisheries has removed more than 492 metric tons of derelict fishing gear from the reefs and beaches of the NWHI since 1996. The debris snags on coral heads, killing the coral and destroying the coral reef ecosystem. Monk seals, turtles, seabirds, fish and invertebrates are injured or killed when they become entangled. This debris is a clear and present danger to protected species (monk seals, turtles), coral reefs, and the essential fish habitat provided by reefs. Due to the nature of the mechanism of debris entanglement on the substrate, some by-catch of benthic species, particularly those that have attached to the debris, is unavoidable. Concerted efforts will be made to return living substrate to the bottom and to minimize benthic disturbance while removing the debris.

The proposed activities (below) are consistent with and support the purposes of the Refuge, primarily to better understand and manage the resources within the marine refuge.

REVIEW PROCESS:

The permit was received by the Division of Aquatic Resources on April 19, 2006. It was sent out for review and comment to the following scientific entities: Division of Aquatic Resources staff (5), Division of Forestry and Wildlife, Northwest Hawaiian Islands Coral Reef Ecosystem Reserve, United States Fish and Wildlife Service. Native Hawaiians from the Office of Hawaiian Affairs, and Kaho'olawe Island Reserve Commission were also consulted.

As of May 30, 2006, the Division of Aquatic Resources has received comments from the Northwest Hawaiian Islands Coral Reef Ecosystem Reserve in support of this application and the issuance of permit. The Reserve also recommends that the applicants should be provided with a briefing on the Native Hawaiian cultural significance of the area, and that discharge must be regulated in accordance with Reserve prohibitions when transiting Reserve waters. See Attachment 1 for the detail of the comments.

No other issues or concerns were raised from the Scientific Community or from Native Hawaiian reviewers. However, previous recommendations for marine debris removal activities on permits issued to Cynthia Vanderlip for Kure Atoll and to the US Coast Guard Cutter Kukui are also incorporated herein.

RESPONSE:
No response was required.

FINAL STAFF RECOMMENDATIONS:

1) Allow the NOAA vessel *Oscar Elton Sette* entry into State waters to support marine debris removal and mitigation at French Frigate Shoals, Laysan Island, Lisianski Island, Neva Shoal, Pearl and Hermes Atoll, and Kure Atoll.

2) Allow the take of broken/entangled corals and marine algae associated with debris.

3) Applicant's relevant activities shall comply with the following additional instructions and conditions:

   - All take shall be documented. Photographic documentation of any debris removal activity affecting large colonies should be provided. In particular, visual documentation should be provided both pre- and post-marine debris removal for activities affecting large (>1 m) colonies of any live coral or coralline algae live rock.
   - Corals and other organisms should be returned to their place of origin;
   - Live corals should not be exposed to air during the debris removal process.
   - In the event that a large colony is damaged, an attempt will be made to cement the colony back into place.
   - If a net or other debris has become so entangled as to be an integral part of the reef, no attempt shall be made to remove it.
   - The applicant should follow protocols for dealing with invasive species and for minimizing disturbance to benthic species and wildlife.

RECOMMENDATION:

"That the Board authorize and approve, with stated conditions, a Research, Monitoring and Education Permit to Dr. Russell Brainard of the National Oceanic and Atmospheric Administration, for activities and access within the State waters of the NWHI."

Respectfully submitted,

DAN POLHEMUS
Administrator

APPROVED FOR SUBMITTAL

PETER T. YOUNG
Chairperson

Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve
NOAA/NOS/NMSP
Comments on State of Hawaii NWHI Marine Refuge Permits

PERMIT SUMMARY
Title: Marine Debris Removal and Mitigation
Project Leader: Russel E. Brainard
Location: French Frigate Shoals, Laysan, Lisianski Island, Pearl and Hermes Atoll and Kure Atoll
Description: Marine debris removal.

BACKGROUND
See comments on Coast Guard application for marine debris removal.

MANAGEMENT RELEVANCE TO THE RESERVE
Marine Debris is a significant threat to living marine resources in the NWHI and an important management issue for the Reserve. Removal is one of several measures that are necessary to mitigate this threat. As one of the management agencies involved in this multi-agency effort, the Reserve supports this marine debris permit application.

POTENTIAL IMPACTS
Removal of marine debris activities has the potential to impact sea turtles, monk seals, live coral, seabirds, and top predators. However, the enormity of the marine debris problem in the NWHI requires a corresponding serious mitigation effort to reduce the adverse impacts to the ecosystem. Given the level of training, protocols and procedures involved, risk of harmful interactions with wildlife and protected species appear minimal. Protocols intended to minimize harm to encrusting benthic organisms during net removals appear adequate.

RESERVE RECOMMENDATION
The Reserve supports this research project and recommends issuing the permit as requested.

Specific Recommendations:
- Applicants should be provided with a briefing on the Native Hawaiian cultural significance of the area.
- Discharge must be regulated in accordance with Reserve prohibitions when transiting Reserve waters.

x Approve

O Approve with conditions

O Disapprove

Reserve staff Reviewers:
x Malia Chow, Ph.D.
x Randy Kosaki, Ph.D.
x Moani Pai
x Kekuewa Kikiloi
x Hoku Johnson

Manager's concurrence with staff recommendation

'Aulani Wilhelm, Acting Reserve Manager

Braimard

APPENDIX 1

State of Hawai'i
DLNR
Northwestern Hawaiian Islands State Marine Refuge
Permit Application Form

For Office Use Only
Permit No:
Expiration date:
Date Appl. Received:
Appl. Fee received:
NWHI Permit Review Committee date:
Board Hearing date:
Post to web date:

Type of Permit

☐ I am applying for a **Research, Monitoring & Education** permit. (Complete and mail Application)
- ☐ This application is for a NEW project in the State Marine Refuge.
- ☐ This application is for an ANNUAL RENEWAL of a previously permitted project in the State Marine Refuge.

☐ I am applying for a permit for a **Native Hawaiian** permit. (Complete and mail Application)

- ☐ This application is for a NEW project in the State Marine Refuge.
- ☐ This application is for an ANNUAL RENEWAL of a previously permitted project in the State Marine Refuge.

☒ I am applying for a **Special Activity** permit. (Complete and mail Application)

- ☐ This application is for a NEW project in the State Marine Refuge.
- ☒ This application is for an ANNUAL RENEWAL of a previously permitted project in the State Marine Refuge.

Briefly describe **Special permit** activity:

When will the NWHI activity take place?

☒ **Summer** (May-July of __2006___ (year)
Note: Permit request must be received before February 1st
Specific dates of expedition ___~July 17, 2006 – September 6, 2006___

☒ **Fall** (August-November) of _2006___ (year)
Note: Permit request must be received before May 1st
Specific dates of expedition _____~July 17, 2006 – September 6, 2006

☐ **Other**

NOTE: INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED

Please Send Permit Applications to:

NWHI State Marine Refuge Permit Coordinator
State of Hawai'i
Department of Land and Natural Resources
Division of Aquatic Resources
1151 Punchbowl Street, Room 330
Honolulu, Hawai'i 96813

NWHI State Marine Refuge Permit Application
See Appendix 2 for Application Instructions

Section A – Applicant Information	
1. Project Leader (attach Project Leader's CV or resume) ☒ CV attached Brainard, Russel E. Name: Last, First, Middle Initial	 Chief, Coral Reef Ecosystem Division (CRED) Title
2. Mailing Address (Street/PO Box, City, State, Zip) 1125 Ala Moana Blvd. Ste. B Honolulu, HI 96814	Telephone (808) 983-3737 Fax (808) 983-3730 Email Address rusty.brainard@noaa.gov
3. Affiliation (Institution/Agency/Organization) NOAA Pacific Island Fishery Science Center (PIFSC)	For graduate students, Major Professor 's Name & Telephone
4. Sub-Permittee/Assistant Names, Affiliations, and Contact Information attached	☐ CV or resume attached
5. Project Title Marine Debris removal and mitigation	
6. Applicant Signature	7. Date (mm/dd/yyyy)

Section B: Project Information

8. **(a) Project Location**

☒ NWHI State Marine Refuge (0-3 miles) waters surrounding:

- ☐ Nihoa Island
- ☐ Necker Island (Mokumanamana)
- ☒ French Frigate Shoals
- ☒ Laysan
- ☐ Maro
- ☐ Gardner Pinnacles
- ☒ Lisianski Island, Neva Shoal
- ☒ Pearl and Hermes Atoll
- ☒ Kure Atoll, State Wildlife Refuge
- ☐ Other NWHI location

Describe project location (include names, GPS coordinates, habitats, depths and attach maps, etc. as appropriate).

The project will operate in the near shore (<10m) reef complexes and beaches of French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes and Kure Atolls.

(b) check all actions to be authorized:

☒ Enter the NWHI Marine Refuge waters

☒ Take (harvest) ☐ Possess ☒ Transport (☒ Inter-island ☒ Out-of-state) Out of state=Midway

☐ Catch ☒ Kill ☐ Disturb ☒ Observe

☒ Anchor ☒ Land (go ashore) ☐ Archaeological research

☒ Interactions with Sea Turtles or Monk Seals ☒ Interactions with Seabirds

☒ Interactions with Live Coral, Ark Shells or Pearl Oysters

☒ Interactions with Jacks, Grouper or Sharks

☐ Conduct Native Hawaiian religious and/or cultural activities

☐ Other activities _____

(c) Collection of specimens – collecting activities (would apply to any activity): Due to the nature of the mechanism of debris entanglement on the substrate, some by-catch of benthic species will take place during the removal of derelict fishing gear from the substrate. Concerted efforts will be made to return "living" substrate to the bottom and to minimize benthic disturbance while removing the debris.

Organisms or objects (List of species, if applicable, add additional sheets if necessary):

Scientific Name	No. & Size of specimens	Collection Location
Pocillopora meandrina	Variable; dependent on number and size of coral heads and/or fragments that have been broken from the substrate and become entangled in the net as it has moved across the bottom, encapsulated the debris, or recruited directly on the debris ↓	Pearl & Hermes Atoll; Kure Atoll; Midway Atoll; French Frigate Shoals; Lisianski/Neva Shoals; Laysan; ↓
Pocillopora eydouxi		
Pocillopora ligulata		
Pocillopora verrucosa		
Pocillopora molokoensis		
Pocillopora damicornis		
Unidentified pocilloporid		
Porites lobata		
Porites compressa		
Porites evermanni		
Porites brighami		
Montipora capitata		
Montipora turgescens		
Montipora flabellata		
Montipora patula		
Pavona duerdeni		
Psammacora nierstrazi		
Psammacora stellata		
Cypohastrea ocellina		
Marine Algae (including holdfasts)		

(d) What will be done with the specimens after the project has ended?

(e) Will the organisms be kept alive after collection? ☐ yes ☒ no

- Specific site/location _____
- Is it an open or closed system? ☐ open ☐ closed

- Is there an outfall? ☐ yes ☐ no
- Will these organisms be housed with other organisms? If so, what are the other organisms?

(Please attach additional documentation as needed to complete the questions listed below)

9. Purpose/Need/Scope:

- State purpose of proposed activities:

The multi-agency debris removal expeditions led by NOAA Fisheries, have removed more than 492 metric tons of derelict fishing gear from the reefs and beaches of the NWHI since 1996. It is estimated that hundreds of metric tons of derelict fishing gear remain fouled on these reefs and beaches, posing a clear and present danger to protected species (monk seals, turtles), coral reefs, and the essential fish habitat provided by reefs. These facts warrant further efforts to investigate and mitigate the lethal and sub-lethal effects of accumulated marine debris. The enormity and significance of this problem requires a corresponding magnitude and intensity of debris removal efforts and studies. To address these concerns, and to follow up on debris removal efforts conducted from 1996 - 2005, NOAA's CRED Marine Debris team, in partnership with other concerned governmental agencies and non-governmental organizations, proposes to conduct a total 2 month effort targeting the shallow reefs (<30 feet) and beaches of the Northwestern Hawaiian Islands.

Describe how your proposed activities will help provide information or resources to fulfill the State Marine Refuge purpose and to reach the Refuge goals and objectives.

> The proposed activities are consistent with and support the purposes of the Refuge as directed by the Department, specifically §13-60 5.1 (4) "To support, promote, and coordinate appropriate scientific research and assessment, and long-term monitoring of the refuge resources, and the impacts or threats thereto from human and other activities, to help better understand, protect, manage, and conserve consistent with applicable law."

The NOAA PIFSC Marine Debris program with aid of the United States Coast Guard (USCG), works to remove fouled derelict fishing gear from the reefs and beaches of the NWHI. By limiting the anthropogenic negative impacts from the ecosystem, the Marine Debris program advances the refuge goals to promote and protect a healthy productive environment and the living resources that lie within.

- Give reasons why this activity must take place in the NWHI and cannot take place in the Main Hawaiian Islands, or elsewhere.

The geographic location of the NWHI subjects the reefs to debris floating in the North Pacific Subtropical Convergence Zone. This convergence zone collects floating debris into a band that encompasses the archipelago depositing debris along its path. Due to the oceanic position, and the sensitivity of the NWHI ecosystem, debris accumulation and the corresponding negative impacts are of greater concern in the NWHI, than in the MHI. It is because of these reasons that NOAA and the United States Coast Guard have focused historically on the reefs and beaches of the northwestern part of the archipelago.

- Describe context of this activity, include history of the science for these questions and background.

The Hawaiian Islands National Wildlife Refuge in the Northwestern Hawaiian Islands (NWHI) comprises a large

percentage of U.S. coral reefs. Surveys of these islands from 1979 to 1983 reported relatively pristine reefs, but by 1996 the reefs were suffering from substantial anthropogenic damage, primarily due to the effects of derelict fishing gear. While land-based sources may be responsible for the majority of marine debris in the world's oceans, debris of maritime origins may pose the greatest threat to ecosystem health in the Hawaiian Islands National Wildlife Refuge (HINWR). The remote central Pacific location and extensive shallow reefs of the HINWR filter derelict fishing gear originating throughout the Pacific Rim. The North Pacific Subtropical Convergence Zone provides a mechanism for debris accumulation in this region. Much of this accumulated debris is ultimately deposited on the coral reefs and beaches of the HINWR.

- Explain the need for this activity and how it will help to enhance survival or recovery of refuge wildlife and habitats.

Preliminary results from other U.S. Pacific Islands suggest that a disproportionate amount of North Pacific derelict fishing gear accumulates in the HINWR. Derelict fishing gear poses a serious and lethal threat to macrofauna in environments where this debris is present, as well as being a hazard to safe navigation. The reef communities of the HINWR include protected species and other rare and endemic wildlife. All marine turtles that occur in Hawaiian waters have documented entanglement records including the endangered hawksbill (*Eretmochelys imbricate)*, olive ridley *(Lepidochelys oliveacea),* and leatherback *(Dermochelys coriacea)* sea turtles, as well as threatened green sea turtles (*Chelonia mydas)*. Entanglement in derelict fishing gear is also a known cause of mortality to the critically endangered Hawaiian monk seal *(Monachus schauinslandi)*. All six extant breeding subpopulations of this seal are located in the HINWR, and they suffer the greatest entanglement rate of any pinniped reported to date. Seabirds whose reproductive grounds are located on land features associated with the extensive reef systems of the HINWR have also been found lethally entangled in derelict nets, thereby encompassing wildlife resources overwhich the U.S. Fish and Wildlife Service and DLNR have direct stewardship. In addition to marine mammals, sea turtles, and seabirds; fish and crustaceans are also at risk from entanglement in derelict fishing gear, thus broadening the ecological scope of these anthropogenic impacts.

Furthermore the movement of derelict fishing gear across shallow atolls threatens the ecological balance of the reef community itself. Once derelict fishing gear snags on the atolls of the HINWR, it begins a cycle of destructive activity. Derelict fishing gear modifies the reef structure by damaging the coral substrate that comprises the reef. After snagging on coral reefs, wave action forces on the debris breaks the coral heads on which debris is fixed, liberating the debris to subsequently snag and similarly damage additional coral. This action continues until the nets are removed, or become adequately weighted with abraded coral to sink.

By removing the debris from this environment, the negative impacts and stress placed on the benthic ecosystem and its inhabitants are mitigated.

- Describe how your proposed project can help to better manage the State Marine Refuge.

To address these concerns, and to follow up on debris removal efforts conducted from 1996 – 2005, the Pacific Islands Fisheries Science Center (PIFSC) of NOAA Fisheries, in partnership with other concerned governmental agencies and non-governmental organizations, proposes to conduct a two month effort targeting the shallow (<10 m) waters associated with French Frigate Shoals, Laysan Island, Lisianski Island, and Pearl and Hermes Atoll. The objectives of this effort are to:

- conduct a large-scale operation to census, document, and remove derelict fishing gear in shallow water coral reef environments. Census and removal work are to include extensive manta tows and snorkel surveys
- establish or resurvey "clean zones" to examine debris accumulation rates at sites visited
- remove previously collected terrestrial debris at sites visited in concert with USFWS and NOAA Fisheries Protected Species Division (PSD) Hawaiian monk seal field camp personnel

Cooperating partners include, but are not limited to: NOAA Fisheries, National Ocean Service (NOS) Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, University of Hawaii Joint Institute for Marine and Atmospheric Research (JIMAR), U.S. Fish & Wildlife Service (USFWS), U.S. Coast Guard (USCG), Hawaii Department of Land and Natural Resources Division of Aquatic Resources (DAR), The Ocean Conservancy (formerly The Center for Marine Conservation), , Schnitzer Steel Industries, Inc., Covanta Energy,., Honolulu Waste Disposal, Hawaii Sea Grant College Program.

Other Collections:

(1) Continue to obtain current and accurate documentation of population, spatial distribution and aspects of demography of the pearl oyster (*Pinctada margaritifera*) and crown-of-thorns seastar (*Acanthaster planci*).

(2) Obtain opportunistic documentation of historical shipwrecks and other artifacts.

Additional Research Activities:

(3) Deployment of drifter buoys to track the movement of derelict fishing gear in the Pacific.

(4) Oceanographic Mooring Inspection, Replacement, and Installation.

10. Procedures (include equipment/materials)

Shallow-water (<10m) areas associated with Pearl and Hermes Atoll, Laysan and Lisianski Islands, Kure Atoll, and French Frigate Shoals will be systematically surveyed for the presence of buoyant or submerged marine debris. At Kure and Pearl and Hermes Atoll, High Entanglement Risk Zones (HERZ) for Hawaiian monk seal entanglement that were cleared of marine debris in 2005 will be specifically targeted to generate information on marine debris accumulation rates and to maximize benefits to endangered marine mammals as well as other protected seabird and marine turtle species. A NOAA vessel (R/V Oscar Elton Sette) will work to coordinate transport of equipment and personnel and to serve as support platforms for debris removal and research activities throughout the duration of the project.

a. In-Water Survey Methods: NOAA divers/snorkelers will use between two and six small NOAA boats (5.3 meter Avons) launched from the support vessel to conduct field operations. Two types of in-water surveys are employed:

1. Tow Survey: During a tow survey, two snorkelers will be towed approximately 10 m behind the lead boat, holding resin-laminated wooden boards to steer themselves while visually inspecting the water column and benthos.

2. Snorkel Survey: Snorkel surveys are conducted in areas where the bathymetry makes tow surveys inappropriate. During a snorkel survey, two snorkelers transit a section of reef (making certain they are always in view of each other) while visually inspecting the water column and benthos.

Upon sighting a derelict net and/or net fragment, a hand signal is given to halt the boats and a GPS waypoint is taken. Debris type and size, fouling level, water depth, and substrate type are recorded. Debris that can be physically recovered or towed by small boats is carefully removed by divers (see section below, Protocol for Minimizing Benthic Disturbance) and loaded into the boat(s). Survey efforts then resume, with the small boats returning to their support vessel to offload collected debris when they reach their capacity.

b. Protocol for Minimizing Benthic Disturbance: Debris search and recovery surveys will be conducted in shallow (<10 m) water, within a range generally workable by snorkel free-diving. SCUBA, with its more prolonged bottom time, will be used only for more complex recovery efforts that cannot be accomplished safely by free-diving. Care will be taken during anchoring small boats to select a substrate in which benthic disturbance is minimized (e.g., sand, rubble). The anchor will be lowered rather than thrown, and a diver will check the anchor to make sure it does not drag.

During debris recovery, workers cut debris free from the substrate, using care to avoid additional coral damage. To the maximum extent possible, detached coral heads and fragments entangled in the nets will be extracted on-site and returned to the bottom. Derelict nets in which >75% of surface area has been incorporated into the reef structure and are no longer an entanglement hazard will be left in place to avoid additional coral damage.

c. Debris removal from beaches. Debris that has accumulated on and must be removed from HINWR beaches will be retrieved by personnel who are knowledgeable of and act

in compliance with all federal laws, rules and regulations governing wildlife in the Northwestern Hawaiian Islands and National Wildlife Refuges. This includes, but is not limited to:

- decontamination of all clothing and soft gear taken ashore by prior freezing for at least 48 hours, or use of new clothing/soft gear as indicated by USFWS regulations;
- avoidance of seabird colonies to the maximum extent practical;
- avoidance of disturbance to marine turtles and Hawaiian monk seals, specifically maintaining a minimum distance of 50 yards from all monk seals and turtles, and a minimum of 100 yards from female seals with pups; and
- removal of all items brought ashore.

Pearl Oyster and Crown-of-Thorns:

These surveys will take place while surveying for marine debris as described above. When a pearl oyster or Crown-of-Thorns is sighted, the boat will stop and a waypoint will be taken to mark the exact location. The depth of the water, and the height, length, width and any other notable data concerning the pearl oyster or crown-of-thorns will be taken. Divers will minimize organism disturbance to the maximum extent possible, and all measurements will be in situ; no collecting will be done.

Marine Artifacts:

These surveys will take place while surveying for marine debris as described above. When a shipwreck fragment or other historical man-made object is sighted, the boat will stop and a waypoint will be taken to mark the exact location. The depth of the water, height, width and any other notable data concerning the artifacts will be taken, along with detailed photographic documentation. In the course of documenting marine artifacts, the objects will not be disturbed, or moved from their discovered location.

Drifter buoy deployment for the tracking of derelict fishing gear movements in the Pacific:

The marine debris team will take 2 drifter buoys on the cruise; the buoys are small cylindrical shape and approximately 10 inches high and 18 inches in diameter. Untethered, it has a draft of 8 inches. It is anticipated that the tether will consist of three 8 foot segments of 1" floating line connected by swivels. The tether is a total of 24-40 feet long. The free end of the tether can be affixed to floating derelict fishing gear by a shackle or secure knot. If floating derelict gear is encountered outside of the atolls, the debris team will attach a drifter buoy to the debris. The buoys will be left on the debris to track the buoy and monitor oceanographic movements. If the buoy and debris becomes fouled on the reefs of the Northwestern Hawaiian Islands they will be retrieved.

Oceanographic Moorings:

Sea Surface Temperature buoys will be inspected at Lisianski Island, Midway Atoll, Laysan Island and Kure Atoll. Coral Reef Early Warning System Buoys will be inspected at Maro Reef, Pearl and Hermes Atoll, and Kure Atoll. A Subsurface Temperature Recorder will be inspected at Laysan Island.

11. Funding sources (attach copies budget & funding sources).

All projects are funded by NOAA's Coral Reef Conservation and Marine Debris Program.

12. List all literature cited in this application as well as all other publications relevant to the proposed project.

Amy Hall, Jake Asher, Seema Balwani and Jennifer Stephenson (2005). Northwestern Hawaiian Islands and Main Hawaiian Islands Marine Debris Removal Program. 2005 Sustainable Beaches Conference October 31 - November 2, 2005 Renaissance Vinoy Resort St. Petersburg, Florida. Abstract accepted.

Jennifer R. Stephenson and Amy Hall. Derelict Fishing Gear in the Coral Reef Ecosystem of the Northwestern Hawaiian Islands. In Abstract/Poster: 2nd National Conference on Coastal and Estuarine Habitat Restoration. September 12-15th 2004, Seattle, WA.

Raymond Boland, Brian Zgliczynski, Jacob Asher, et al. (2004). DYNAMICS OF DEBRIS DENSITIES AND REMOVAL AT THE NORTHWESTERN HAWAIIAN ISLANDS CORAL REEFS. (In press) Proceedings from the 2004 NWHI Symposium, Honolulu, HI: pp. 1-19.

Jacob M. Asher, Amy Hall and Michael Noah. DERELICT FISHING GEAR ACCUMULATIONS IN THE NORTHWESTERN HAWAIIAN ISLANDS FROM 2001 TO 2003. In Abstract. The Seventh Regional Symposium PACON International.
Honolulu, Hawaii, June 2004.

Jennifer R. Stephenson, Gregory S. Schorr, and Michael Noah. BENTHIC HABITAT IMPACTS CAUSED BY DERELICT FISHING GEAR, PEARL AND HERMES ATOLL. In Abstract. The Seventh Regional Symposium PACON International.
Honolulu, Hawaii, June 2004.

Asher, J. and Timmers, M.A. (2003). The Occurrence of Live Corals on Derelict Fishing Gear in the Northwestern Hawaiian Islands. In: Abstract. The Sixth Regional Symposium PACON International. Kaohsiung, Taiwan, November 2003.

Timmers, M. A. and Donohue, M. J. (2003) Challenges Identifying Fisheries from Fishing Gear Removed in the Northwestern Hawaiian Islands. In: Abstract. The Sixth Regional Symposium PACON International. Kaohsiung, Taiwan, November 2003.

David G. Foley, Russell E. Brainard, Tim Veenstra, Mary E. Donohue, Kyle Hogrefe, and R. Michael Laurs (2003). Spatial and Temporal Variations of the North Pacific Subtropical Convergence. In Abstract. The Sixth Regional Symposium PACON International. Kaohsiung, Taiwan, November 2003.

13. What types of insurance do you have in place? (attach documentation) The *Sette* is owned by the U.S. Government and is therefore self-insured.

☐ Wreck Removal

☐ Pollution

14. What certifications/inspections do you have scheduled for your vessel? (attach documentation)

☒ Rat free ☐ tender vessel ☐ gear/equipment

☒ Hull inspection ☐ ballast water

15. Other permits (list and attach documentation of all other required Federal or State permits).

NOAA's PIFSC Marine Debris program has a pending Special Use Permit from the U.S. Fish and Wildlife Service to support marine debris removal within the Hawaiian Islands NWR, and a current DLNR Special Use Permit for debris removal in the main Hawaiian Islands. Also, the NOAA research vessel Oscar Elton Sette has a pending DLNR Special Use Permit to perform duties as platform for PIFSC research.

16. Project's relationship to other research projects within the NWHI State Marine Refuge, National Wildlife Refuge, NWHI Coral Reef Ecosystem Reserve, or elsewhere.

The NOAA Fisheries PIFSC marine debris program works in conjunction with the USCG to remove derelict

fishing gear within the NWHI and the USFWS Refuge Complex. PIFSC is also heavily involved with research and monitoring of the coral reef ecosystems in the NWHI and USFWS Refuge Complex, which includes biennial RAMP cruises to the NWHI. Finally, the PIFSC marine debris program has worked closely with the NOAA Protected Species Division (PSD) and the USFWS to assist with the management and monitoring of protected species, remote island resources, and logistical support of remote field staff through mitigative and cooperative efforts in the NWHI.

Section C: Logistics

17. Time Frame:

Project Start Date	Project Completion Date
July 17, 2006	September 6, 2006

Dates actively inside the State Marine Refuge.

French Frigate Shoals: 7/19

Laysan Island: 7/21

Lisianski Island: 7/22

Midway Atoll: 7/23 – 8/13

Kure Atoll: 8/14 – 8/21

Pearl and Hermes Atoll: 8/22 – 8/29

French Frigate Shoals: 9/1 – 9/4

Arrive Honolulu: 9/6

(Subject to change)

Personnel schedule in the State Marine Refuge (describe who will be where and when).

See above. Entire ships complement (attached) will be within the refuge on the specified dates.

18. Gear and Materials

☒ Dive equipment ☐ Radio Isotopes

☒ Collecting Equipment ☐ Chemicals (specify types)

19. Fixed installations and instrumentation.

☐ Transect markers ☐ Acoustic receivers

☐ Other (specify)

No fixed installations or instrumentation will be used within the Refuge.

20. Provide a time line for sample analysis, data analysis, write-up and publication of information.

A report of all activities carried out under the permit authority will be submitted to the DLNR following the conclusion of the cruises. The report will include the dates of all arrivals and departures from islands and atolls within the Refuge, names of all persons involved, results of work to date, and a proposed schedule of publication or data analyses. Important activities will be video and/or photo-documented, and video and/or photographic evidence of the debris removal activities will be collected.

21. **Vessel Information**:

Vessel Name *Oscar Elton Sette* IMO Number 8835097

Vessel Owner US Department of Commerce, NOAA Flag U.S.A.

Captain's Name Cmdr. Mike Devany Chief Scientist or Project Leader Rusty Brainard

Vessel Type TAGOS class research vessel Call sign WTEE

Length 68.3 m. Gross tonnage 2,014

Port of Embarkation _____Honolulu _____

Last port vessel will have been at prior to this embarkation __Honolulu, HI____

Total Ballast Water Capacity: Volume _135,000 gal Total number of tanks on ship ____10_____

Total Fuel Capacity: _____163,000_gal_____ Total number of fuel tanks on ship ___14____

Other fuel/chemicals to be carried on board and amounts:

Engines hold about 100 gallons of lube oil, but no lube oil storage tanks exist.

- Number of tenders/skiffs aboard and specific type of motors:
- Inflatable
  - Quantity: 2-4
  - Type: Avon
  - Length: 17.5 ft.
  - Propulsion: Twin 30 hp Honda outboard motors
  - Capacity: 7 persons
- Achilles
  - Quantity: 1
  - Type: Inflatable
  - Length: 14 ft.
  - Hoisting weight: 371 lbs.
  - Propulsion: 40 hp Honda outboard motor
  - Capacity: 6 persons
- Safe boat
  - Quantity: 1
  - Type: Safeboat
  - Length: 15 ft.
  - Hoisting weight: 1,340 lbs.
  - Propulsion: 90 hp Honda outboard motor
  - Capacity: 7 persons
- Rescue boat
  - Quantity: 1
  - Type: Ambar Marine, ABM-5
  - Length: 18 ft.
  - Hoisting weight: 3,949 lbs. (with 7 persons)
  - Propulsion: Twin 60 hp Mariner outboard motors
  - Capacity: 7 persons

Does the vessel have the capability to hold sewage and grey-water? Describe in detail. 6000 gal holding tank for grey & black water.

Does the vessel have a night-time light protocol for use in the NWHI? Describe in detail (attach additional pages as necessary) No

On what workboats (tenders) will personnel, gear and materials be transported within the State Marine Refuge?

Workboats listed above detailed to the *Sette* will be used to transport gear and materials between ship and the reef system.

How will personnel, gear and materials be transported between ship and shore?

Workboats and tenders as described above.

If applicable, how will personnel be transported between islands within any one atoll?

Workboats and tenders as described above.